



## SEQUENCE LISTING

&lt;110&gt; AMRAD Operations Pty Ltd

&lt;120&gt; A NOVEL MAMMALIAN GENE, bcl-2, BELONGS TO THE bcl-2 FAMILY OF APOPTOSIS-CONTROLLING GENES

&lt;130&gt; 2096584

&lt;140&gt; 09/155,327

&lt;141&gt; 1997-03-27

&lt;150&gt; PN8965

&lt;151&gt; 1996-03-27

&lt;160&gt; 15

&lt;170&gt; PatentIn Ver. 2.1

&lt;210&gt; 1

&lt;211&gt; 33

&lt;212&gt; DNA

&lt;213&gt; Mouse

&lt;220&gt;

&lt;221&gt; modified\_base

&lt;222&gt; 16

&lt;223&gt; n is inosine

&lt;220&gt;

&lt;221&gt; modified\_base

&lt;222&gt; 19

&lt;223&gt; n is inosine

&lt;220&gt;

&lt;221&gt; modified\_base

&lt;222&gt; 22

&lt;223&gt; n is inosine

&lt;220&gt;

&lt;221&gt; modified\_base

&lt;222&gt; 25

&lt;223&gt; n is inosine

&lt;400&gt; 1

gctctagaac tgggnhgnr tngtngcctt ytt

33

&lt;210&gt; 2

&lt;211&gt; 9

&lt;212&gt; PRT

&lt;213&gt; Mouse

&lt;220&gt;

&lt;221&gt; Unsure

&lt;222&gt; 5

&lt;223&gt; Xaa is Ile or Val

&lt;400&gt; 2

Asn Trp Gly Arg Xaa Val Ala Phe Phe  
1 5

<210> 3  
<211> 31  
<212> DNA  
<213> Mouse

<220>  
<221> modified\_base  
<222> 14  
<223> n is inosine

<220>  
<221> modified\_base  
<222> 17  
<223> n is inosine

<220>  
<221> modified\_base  
<222> 20  
<223> n is inosine

<400> 3  
ggaattccca gccncntkn tcttggatcc a

31

<210> 4  
<211> 8  
<212> PRT  
<213> Mouse

<220>  
<221> Unsure  
<222> 4  
<223> Xaa is Asp or Glu

<220>  
<221> Unsure  
<222> 5  
<223> Xaa is Asn or Gln

<400> 4  
Trp Ile Gln Xaa Xaa Gly Gly Trp  
1 5

<210> 5  
<211> 14  
<212> PRT  
<213> Mouse

<400> 5  
Met Ala Thr Pro Ala Ser Thr Pro Asp Thr Arg Ala Leu Val  
1 5 10

<210> 6

<211> 583  
<212> DNA  
<213> HUMAN

<220>  
<221> CDS  
<222> (1)..(579)

<400> 6  
atg gcg acc cca gcc tcg gcc cca gac aca cgg gct ctg gtg gca gac 48  
Met Ala Thr Pro Ala Ser Ala Pro Asp Thr Arg Ala Leu Val Ala Asp  
1 5 10 15  
  
ttt gta ggt tat aag ctg agg cag aag ggt tat gtc tgt gga gct ggc 96  
Phe Val Gly Tyr Lys Leu Arg Gln Lys Gly Tyr Val Cys Gly Ala Gly  
20 25 30  
  
ccc ggg gag ggc cca gca gct gac ccg ctg cac caa gcc atg cgg gca 144  
Pro Gly Glu Gly Pro Ala Ala Asp Pro Leu His Gln Ala Met Arg Ala  
35 40 45  
  
gct gga gat gag ttc gag acc cgc ttc cgg cgc acc ttc tct gat ctg 192  
Ala Gly Asp Glu Phe Glu Thr Arg Phe Arg Arg Thr Phe Ser Asp Leu  
50 55 60  
  
gcg gct cag ctg cat gtg acc cca ggc tca gcc cag caa cgc ttc acc 240  
Ala Ala Gln Leu His Val Thr Pro Gly Ser Ala Gln Gln Arg Phe Thr  
65 70 75 80  
  
cag gtc tcc gac gaa ctt ttt caa ggg ggc ccc aac tgg ggc cgc ctt 288  
Gln Val Ser Asp Glu Leu Phe Gln Gly Gly Pro Asn Trp Gly Arg Leu  
85 90 95  
gta gcc ttc ttt ctc ttt ggg gct gca ctg tgt gct gag agt gtc aac 336  
Val Ala Phe Leu Phe Gly Ala Ala Leu Cys Ala Glu Ser Val Asn  
100 105 110  
aag gag atg gaa cca ctg gtg gga caa gtg cag gag tgg atg gtg gcc 384  
Lys Glu Met Glu Pro Leu Val Gly Gln Val Gln Glu Trp Met Val Ala  
115 120 125  
  
tac ctg gag acg cgg ctg gtc gac tgg atc cac agc agt ggg ggc tgg 432  
Tyr Leu Glu Thr Arg Leu Val Asp Trp Ile His Ser Ser Gly Gly Trp  
130 135 140  
  
gcg gag ttc aca gct cta tac ggg gac ggg gcc ctg gag gag gcg cgg 480  
Ala Glu Phe Thr Ala Leu Tyr Gly Asp Gly Ala Leu Glu Glu Ala Arg  
145 150 155 160  
  
cgt ctg cgg gag ggg aac tgg gca tca gtg agg aca gtg ctg acg ggg 528  
Arg Leu Arg Glu Gly Asn Trp Ala Ser Val Arg Thr Val Leu Thr Gly  
165 170 175  
  
gcc gtg gca ctg ggg gcc ctg gta act gta ggg gcc ttt ttt gct agc 576  
Ala Val Ala Leu Gly Ala Leu Val Thr Val Gly Ala Phe Phe Ala Ser  
180 185 190  
  
aag tgaa 583  
Lys

<210> 7

<211> 193  
<212> PRT  
<213> HUMAN

<400> 7  
Met Ala Thr Pro Ala Ser Ala Pro Asp Thr Arg Ala Leu Val Ala Asp  
1 5 10 15  
  
Phe Val Gly Tyr Lys Leu Arg Gln Lys Gly Tyr Val Cys Gly Ala Gly  
20 25 30  
  
Pro Gly Glu Gly Pro Ala Ala Asp Pro Leu His Gln Ala Met Arg Ala  
35 40 45  
  
Ala Gly Asp Glu Phe Glu Thr Arg Phe Arg Arg Thr Phe Ser Asp Leu  
50 55 60  
  
Ala Ala Gln Leu His Val Thr Pro Gly Ser Ala Gln Gln Arg Phe Thr  
65 70 75 80  
  
Gln Val Ser Asp Glu Leu Phe Gln Gly Gly Pro Asn Trp Gly Arg Leu  
85 90 95  
  
Val Ala Phe Phe Val Phe Gly Ala Ala Leu Cys Ala Glu Ser Val Asn  
100 105 110  
  
Lys Glu Met Glu Pro Leu Val Gly Gln Val Gln Glu Trp Met Val Ala  
115 120 125  
  
Tyr Leu Glu Thr Arg Leu Ala Asp Trp Ile His Ser Ser Gly Gly Trp  
130 135 140  
  
Ala Glu Phe Thr Ala Leu Tyr Gly Asp Gly Ala Leu Glu Glu Ala Arg  
145 150 155 160  
  
Arg Leu Arg Glu Gly Asn Trp Ala Ser Val Arg Thr Val Leu Thr Gly  
165 170 175  
  
Ala Val Ala Leu Gly Ala Leu Val Thr Val Gly Ala Phe Phe Ala Ser  
180 185 190  
  
Lys

<210> 8  
<211> 581  
<212> DNA  
<213> Mouse

<220>  
<221> CDS  
<222> (1)..(579)

<400> 8  
atg ccg acc cca gcc tca acc cca gac aca cgc gct cta gtg gct gac 48  
Met Pro Thr Pro Ala Ser Thr Pro Asp Thr Arg Ala Leu Val Ala Asp  
1 5 10 15

ttt gta ggc tat agg ctg agg cag aag ggt tat gtc tgt gga gct ggg Phe Val Gly Tyr Arg Leu Arg Gln Lys Gly Tyr Val Cys Gly Ala Gly	96
20 25 30	
cct ggg gaa ggc cca gcc gac ccg ctg cac caa gcc atg cg <sup>g</sup> gct Pro Gly Glu Gly Pro Ala Ala Asp Pro Leu His Gln Ala Met Arg Ala	144
35 40 45	
gct gga gac gag ttt gag acc cgt ttc cgc cgc acc ttc tct gac ctg Ala Gly Asp Glu Phe Glu Thr Arg Phe Arg Arg Thr Phe Ser Asp Leu	192
50 55 60	
gcc gct cag cta cac gtg acc cca ggc tca gcc cag caa cgc ttc acc Ala Ala Gln Leu His Val Thr Pro Gly Ser Ala Gln Gln Arg Phe Thr	240
65 70 75 80	
cag gtt tcc gac gaa ctt ttc caa ggg ggc cct aac tgg ggc cgt ctt Gln Val Ser Asp Glu Leu Phe Gln Gly Gly Pro Asn Trp Gly Arg Leu	288
85 90 95	
gtg gca ttc ttt gtc ttt ggg gct gcc ctg tgt gct gag agt gtc aac Val Ala Phe Phe Val Phe Gly Ala Ala Leu Cys Ala Glu Ser Val Asn	336
100 105 110	
aaa gaa atg gag cct ttg gtg gga caa gtc cag gat tgg atc gtg gcc Lys Glu Met Glu Pro Leu Val Gly Gln Val Gln Asp Trp Ile Val Ala	384
115 120 125	
tac ctg gag aca cgt ctg gct gac tgg atc cac agc agt ggc ggc tgg Tyr Leu Glu Thr Arg Leu Ala Asp Trp Ile His Ser Ser Gly Gly Trp	432
130 135 140	
gcg gac ttc aca gct cta tac ggg gac ggg gcc ctg gag gac gca cgg Ala Asp Phe Thr Ala Leu Tyr Gly Asp Gly Ala Leu Glu Asp Ala Arg	480
145 150 155 160	
cgt ctg cgg gag ggc aac tgg gca tga gtg agc aca gtg gtg acg ggg Arg Leu Arg Glu Gly Asn Trp Ala Val Ser Thr Val Val Thr Gly Ala	528
165 170 175	
gcc gtg gca ctg ggg gcc ctg gta act gta ggg gcc ttt ttt gct agc Val Ala Leu Gly Ala Leu Val Thr Val Gly Ala Phe Phe Ala Ser Lys	576
180 185 190	
aag tg	581

<210> 9  
<211> 193  
<212> PRT  
<213> Mouse

<400> 9  
Met Ala Thr Pro Ala Ser Thr Pro Asp Thr Arg Ala Leu Val Ala Asp  
1 5 10 15  
Phe Val Gly Tyr Lys Leu Arg Gln Lys Gly Tyr Val Cys Gly Ala Gly  
20 25 30  
Pro Gly Glu Gly Pro Ala Ala Asp Pro Leu His Gln Ala Met Arg Ala

35	40	45	
Ala Gly Asp Glu Phe Glu Thr Arg Phe Arg Arg Thr Phe Ser Asp Leu			
50	55	60	
Ala Ala Gln Leu His Val Thr Pro Gly Ser Ala Gln Gln Arg Phe Thr			
65	70	75	80
Gln Val Ser Asp Glu Leu Phe Gln Gly Gly Pro Asn Trp Gly Arg Leu			
85	90	95	
Val Ala Phe Phe Val Phe Gly Ala Ala Leu Cys Ala Glu Ser Val Asn			
100	105	110	
Lys Glu Met Glu Pro Leu Val Gly Gln Val Gln Asp Trp Met Val Ala			
115	120	125	
Tyr Leu Glu Thr Arg Leu Ala Asp Trp Ile His Ser Ser Gly Gly Trp			
130	135	140	
Ala Glu Phe Thr Ala Leu Tyr Gly Asp Gly Ala Leu Glu Glu Ala Arg			
145	150	155	160
Arg Leu Arg Glu Gly Asn Trp Ala Ser Val Arg Thr Val Leu Thr Gly			
165	170	175	
Ala Val Ala Leu Gly Ala Leu Val Thr Val Gly Ala Phe Phe Ala Ser			
180	185	190	

Lys

<210> 10

<211> 333

<212> PRT

<213> murine

<400> 10

Met Ala Thr Pro Ala Ser Thr Pro Asp Thr Arg Ala Leu Val Ala Asp			
1	5	10	15

Phe Val Gly Tyr Lys Leu Arg Gln Lys Gly Tyr Val Cys Gly Ala Gly		
20	25	30

Pro Gly Glu Gly Pro Ala Ala Asp Pro Leu His Gln Ala Met Arg Ala		
35	40	45

Ala Gly Asp Glu Phe Glu Thr Arg Phe Arg Arg Thr Phe Ser Asp Leu		
50	55	60

Ala Ala Gln Leu His Val Thr Pro Gly Ser Ala Gln Gln Arg Phe Thr			
65	70	75	80

Gln Val Ser Asp Glu Leu Phe Gln Gly Gly Pro Asn Trp Gly Arg Leu		
85	90	95

Val Ala Phe Phe Val Phe Gly Ala Ala Leu Cys Ala Glu Ser Val Asn		
100	105	110

Lys Glu Met Glu Pro Leu Val Gly Gln Val Gln Asp Trp Met Val Ala		
115	120	125

Tyr Leu Glu Thr Arg Leu Ala Asp Trp Ile His Ser Ser Gly Gly Trp		
130	135	140

Glu Leu Glu Ala Ile Lys Ala Arg Val Arg Glu Met Glu Glu Ala			
145	150	155	160

Glu Lys Leu Lys Glu Leu Gln Asn Glu Val Glu Lys Gln Met Asn Met		
165	170	175

Ser Pro Pro Pro Gly Asn Ala Gly Pro Val Ile Met Ser Leu Glu Glu  
 180 185 190  
 Lys Met Glu Ala Asp Ala Arg Ser Ile Tyr Val Gly Asn Val Asp Tyr  
 195 200 205  
 Gly Ala Thr Ala Glu Glu Leu Glu Ala His Phe His Gly Cys Gly Ser  
 210 215 220  
 Val Asn Arg Val Thr Ile Leu Cys Asp Lys Phe Ser Gly His Pro Lys  
 225 230 235 240  
 Gly Phe Ala Tyr Ile Glu Phe Ser Asp Lys Glu Ser Val Arg Thr Ser  
 245 250 255  
 Leu Ala Leu Asp Glu Ser Leu Phe Arg Gly Arg Gln Ile Lys Val Ile  
 260 265 270  
 Pro Lys Arg Thr Asn Arg Pro Gly Ile Ser Thr Thr Asp Arg Gly Phe  
 275 280 285  
 Pro Arg Ser Arg Tyr Arg Ala Arg Thr Thr Asn Tyr Asn Ser Ser Arg  
 290 295 300  
 Ser Arg Phe Tyr Ser Gly Phe Asn Ser Arg Pro Arg Gly Arg Ile Tyr  
 305 310 315 320  
 Arg Gly Arg Ala Arg Ala Thr Ser Trp Tyr Ser Pro Tyr  
 325 330

<210> 11  
 <211> 239  
 <212> PRT  
 <213> Homo sapiens

<400> 11  
 Met Ala His Ala Gly Arg Thr Gly Tyr Asp Asn Arg Glu Ile Val Met  
 1 5 10 15  
 Lys Tyr Ile His Tyr Lys Leu Ser Gln Arg Gly Tyr Glu Trp Asp Ala  
 20 25 30  
 Gly Asp Val Gly Ala Ala Pro Pro Gly Ala Ala Pro Ala Pro Gly Ile  
 35 40 45  
 Phe Ser Ser Gln Pro Gly His Thr Pro His Thr Ala Ala Ser Arg Asp  
 50 55 60  
 Pro Val Ala Arg Thr Ser Pro Leu Gln Thr Pro Ala Ala Pro Gly Ala  
 65 70 75 80  
 Ala Ala Gly Pro Ala Leu Ser Pro Val Pro Pro Val Val His Leu Thr  
 85 90 95  
 Leu Arg Gln Ala Gly Asp Asp Phe Ser Arg Arg Tyr Arg Arg Asp Phe  
 100 105 110

Ala Glu Met Ser Arg Gln Leu His Leu Thr Pro Phe Thr Ala Arg Gly  
115 120 125

Arg Phe Ala Thr Val Val Glu Glu Leu Phe Arg Asp Gly Val Asn Trp  
130 135 140

Gly Arg Ile Val Ala Phe Phe Glu Gly Val Met Cys Val Glu  
145 150 155 160

Ser Val Asn Arg Glu Met Ser Pro Leu Val Asp Asn Ile Ala Leu Trp  
165 170 175

Met Thr Glu Tyr Leu Asn Arg His Leu His Thr Trp Ile Gln Asp Asn  
180 185 190

Gly Gly Trp Asp Ala Phe Val Glu Leu Tyr Gly Pro Ser Met Arg Pro  
195 200 205

Leu Phe Asp Phe Ser Trp Leu Ser Leu Lys Thr Leu Leu Ser Leu Ala  
210 215 220

Leu Val Gly Ala Cys Ile Thr Leu Gly Ala Tyr Leu Gly His Lys  
225 230 235

<210> 12

<211> 233

<212> PRT

<213> Homo sapiens

<400> 12

Met Ser Gln Ser Asn Arg Glu Leu Val Val Asp Phe Leu Ser Tyr Lys  
1 5 10 15

Leu Ser Gln Lys Gly Tyr Ser Trp Ser Gln Phe Ser Asp Val Glu Glu  
20 25 30

Asn Arg Thr Glu Ala Pro Glu Gly Thr Glu Ser Glu Met Glu Thr Pro  
35 40 45

Ser Ala Ile Asn Gly Asn Pro Ser Trp His Leu Ala Asp Ser Pro Ala  
50 55 60

Val Asn Gly Ala Thr Gly His Ser Ser Ser Leu Asp Ala Arg Glu Val  
65 70 75 80

Ile Pro Met Ala Ala Val Lys Gln Ala Leu Arg Glu Ala Gly Asp Glu  
85 90 95

Phe Glu Leu Arg Tyr Arg Arg Ala Phe Ser Asp Leu Thr Ser Gln Leu  
100 105 110

His Ile Thr Pro Gly Thr Ala Tyr Gln Ser Phe Glu Gln Val Val Asn  
115 120 125

Glu Leu Phe Arg Asp Gly Val Asn Trp Gly Arg Ile Val Ala Phe Phe  
130 135 140

Ser Phe Gly Gly Ala Leu Cys Val Glu Ser Val Asp Lys Glu Met Gln

145 150 155 160

Val Leu Val Ser Arg Ile Ala Ala Trp Met Ala Thr Tyr Leu Asn Asp  
165 170 175

His Leu Glu Pro Trp Ile Gln Glu Asn Gly Gly Trp Asp Thr Phe Val  
180 185 190

Glu Leu Tyr Gly Asn Asn Ala Ala Ala Glu Ser Arg Lys Gly Gln Glu  
195 200 205

Arg Phe Asn Arg Trp Phe Leu Thr Gly Met Thr Val Ala Gly Val Val  
210 215 220

Leu Leu Gly Ser Leu Phe Ser Arg Lys  
225 230

<210> 13

<211> 211

<212> PRT

<213> Homo sapiens

<400> 13

Met Ala Ser Gly Gln Gly Pro Gly Pro Pro Arg Gln Glu Cys Gly Glu  
1 5 10 15

Pro Ala Leu Pro Ser Ala Ser Glu Glu Gln Val Ala Gln Asp Thr Glu  
20 25 30

Glu Val Phe Arg Ser Tyr Val Phe Tyr Arg His Gln Gln Glu Gln Glu  
35 40 45

Ala Glu Gly Val Ala Ala Pro Ala Asp Pro Glu Met Val Thr Leu Pro  
50 55 60

Leu Gln Pro Ser Ser Thr Met Gly Gln Val Gly Arg Gln Leu Ala Ile  
65 70 75 80

Ile Gly Asp Asp Ile Asn Arg Arg Tyr Asp Ser Glu Phe Gln Thr Met  
85 90 95

Leu Gln His Leu Gln Pro Thr Ala Glu Asn Ala Tyr Glu Tyr Phe Thr  
100 105 110

Lys Ile Ala Thr Ser Leu Phe Glu Ser Gly Ile Asn Trp Gly Arg Val  
115 120 125

Val Ala Leu Leu Gly Phe Gly Tyr Arg Leu Ala Leu His Val Tyr Gln  
130 135 140

His Gly Leu Thr Gly Phe Leu Gly Gln Val Thr Arg Phe Val Val Asp  
145 150 155 160

Phe Met Leu His His Cys Ile Ala Arg Trp Ile Ala Gln Arg Gly Gly  
165 170 175

Trp Val Ala Ala Leu Asn Leu Gly Asn Gly Pro Ile Leu Asn Val Leu  
180 185 190

Val Val Leu Gly Val Val Leu Leu Gly Gln Phe Val Val Arg Arg Phe  
195 200 205

Phe Lys Ser  
210

<210> 14  
<211> 192  
<212> PRT  
<213> Homo sapiens

<400> 14  
Met Asp Gly Ser Gly Glu Gln Pro Arg Gly Gly Gly Pro Thr Ser Ser  
1 5 10 15

Glu Gln Ile Met Lys Thr Gly Ala Leu Leu Leu Gln Gly Phe Ile Gln  
20 25 30

Asp Arg Ala Gly Arg Met Gly Gly Glu Ala Pro Glu Leu Ala Leu Asp  
35 40 45

Pro Val Pro Gln Asp Ala Ser Thr Lys Lys Leu Ser Glu Cys Leu Lys  
50 55 60

Arg Ile Gly Asp Glu Leu Asp Ser Asn Met Glu Leu Gln Arg Met Ile  
65 70 75 80

Ala Ala Val Asp Thr Asp Ser Pro Arg Glu Val Phe Phe Arg Val Ala  
85 90 95

Ala Asp Met Phe Ser Asp Gly Asn Phe Asn Trp Gly Arg Val Val Ala  
100 105 110

Leu Phe Tyr Phe Ala Ser Lys Leu Val Leu Lys Ala Leu Cys Thr Lys  
115 120 125

Val Pro Glu Leu Ile Arg Thr Ile Met Gly Trp Thr Leu Asp Phe Leu  
130 135 140

Arg Glu Arg Leu Leu Gly Trp Ile Gln Asp Gln Gly Gly Trp Asp Gly  
145 150 155 160

Leu Leu Ser Tyr Phe Gly Thr Pro Thr Trp Gln Thr Val Thr Ile Phe  
165 170 175

Val Ala Gly Val Leu Thr Ala Ser Leu Thr Ile Trp Lys Lys Met Gly  
180 185 190

<210> 15  
<211> 137  
<212> PRT  
<213> Homo sapiens

<400> 15

Asp Ile Glu Gly Phe Val Val Asp Tyr Phe Thr His Arg Ile Arg Gln  
1 5 10 15

Asn Gly Met Glu Trp His Glu Met Met Arg Val Met Gly Thr Ile Phe  
20 25 30

Glu Lys Lys His Ala Glu Asn Phe Glu Thr Phe Cys Glu Gln Leu Leu  
35 40 45

Ala Val Pro Arg Ile Ser Phe Ser Leu Tyr Gln Asp Val Val Arg Thr  
50 55 60

Val Gly Asn Ala Gln Thr Asp Gln Cys Pro Met Ser Tyr Gly Arg Leu  
65 70 75 80

Ile Gly Leu Ile Ser Phe Gly Gly Phe Val Ala Ala Lys Met Met Glu  
85 90 95

Ser Val Glu Leu Gln Gly Gln Val Arg Asn Leu Phe Val Tyr Thr Ser  
100 105 110

Leu Phe Ile Lys Thr Arg Ile Arg Asn Asn Trp Lys Glu His Asn Arg  
115 120 125

Ser Trp Asp Asp Phe Met Thr Leu Gly  
130 135